THE SNAKES OF BURMA
II. REDISCOVERY OF THE TYPE SPECIMEN OF *OLIGODON MCDOUGALLI* WITH A DISCUSSION OF ITS RELATIONSHIPS[1]

H.G. DOWLING AND J.V. JENNER[2]

(With two text-figures)

The unique type specimen of *Oligodon mcdougalli* Wall, 1905, long believed to have been lost (Smith 1943), was found in the reptile collection of the Bombay Natural History Society. An amplified description of the type is presented. Its features suggest that it is closely related to a species group which includes *O. catenata* and *O. dorsalis*.

The Arakan Kukri snake *Oligodon mcdougalli* was described early in this century by Wall (1905). Later, however, Smith (1943: 234) reported that, "the type and only known specimen cannot now be found." It was to our surprise, therefore, that we found *"Oligodon mcdougalli"* listed in the catalogue of the reptile collection of the Bombay Natural History Society (BNHS 963), and the corresponding specimen in a labeled jar. Thus, although the specimen was not marked as a type, it apparently was "lost" only to Smith.

In spite of some slight inconsistencies in data, there appears to be no reason to doubt that this specimen is the type. It was collected by E. McDougall at "Sandarang" (later corrected to Sandoway [Rakhine State, 18° 28' N, 94° 22' E], Burma. The date given in the catalogue (31 December 1907) is believed to be the accession date, rather than the date of collection. In as much as Wall gave only a brief description of the unique type, and because the specimen does not appear to have been examined since its description, we give here an amplified description.

We can confirm Wall's tentative identification of the specimen as a male. It is stiff and somewhat faded, but reasonably well-preserved for its age. We measure it at 337 mm total length, with the tail 45 mm. Wall's measurements were 13 3/4 and 1 7/8 inches, a little longer than ours, but this is explicable as shrinkage over the years. As he indicated, the body is cylindrical, with little distinction between the head and the body. The tail is abruptly pointed.

His description of the colour pattern is precise and more complete than can now be ascertained:

> "Colour dusky-black laterally, with a rufous brown vertebral stripe from nape to tip of tail involving the vertebral and half the adjacent row; this stripe is edged by a series of linear black spots, most evident anteriorly. A linear black line on the confines of the 2nd and 3rd rows above the ventrals, interrupted anteriorly, and ending at vent. A supra-anal black bar and another subterminal, caudal, black bar. Head blackish. Rostral rufous-yellow. Blotched black below. Labials mottled black and rufous-yelow. A rufous collar incomplete vertebrally. Chin, and throat rufous-yellow, mottled black in the sutures. Belly black, mottled fawn. [Darker posteriorly.] Beneath tail black laterally, crimson centrally, the colour of a ripe yew-berry, and reminding one of the tail of *Simotes cruentatus*."

The "dusky-black" has faded to dark brown and the yellows and reds are now a dirty cream colour, but otherwise the description matches the specimen precisely.

We count 199 ventrals and 40 subcaudals (vs. Wall's 200 and 39). Otherwise the counts match exactly. The head scutes are as shown in his drawings (redrawn here as Fig. 1): the internasals are separated from the prefrontals, the

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[2]Department of Biology, New York University, N.Y. - 10003 (U.S.A).

nasal is single, the loreal is absent, oculars are 1 + 1, and the temporals, 1 + 2. There are 7-7 supralabials, with the third and fourth entering the orbit, and 7-7 infralabials. There are two pairs of genials, the posterior pair about 2/3 the size of the anterior and in contact throughout their length. The dorsal scales are smooth and without apical pits. They are arranged in 13 + 13 + 13 rows.

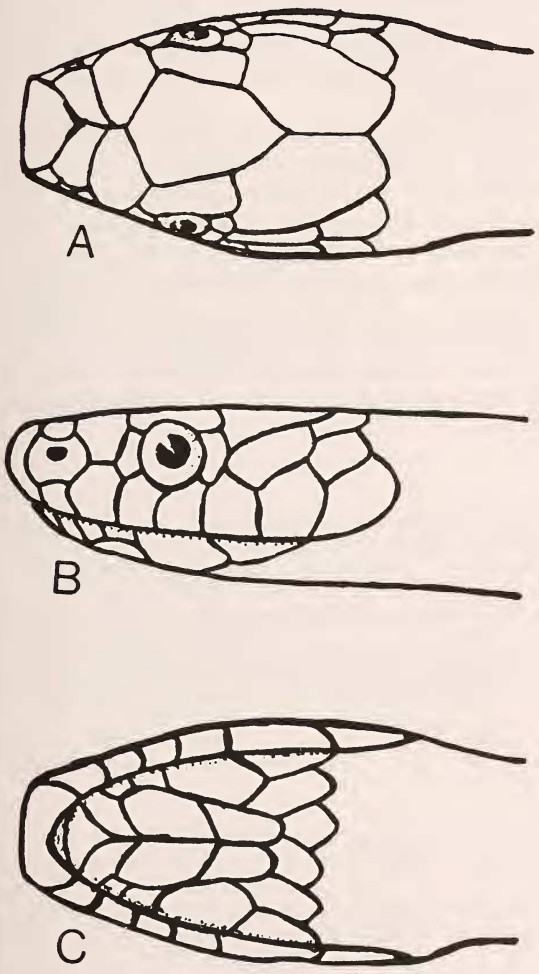

Fig. 1. Head scutellation of *Oligodon mcdougalli*. Redrawn from Wall (1905). The drawings were compared with the type specimen (BNHS 1963) and found correct.

The maxillary is edentulous anteriorly. There are six maxillary teeth, the last three much enlarged and blade-like, but without a diastema separating them from the anterior series. [Thus, the dental formula is 0 + 6.]

Paired hemipenes are present, but are very fragile and difficult to observe. The organs appear to extend to subcaudal (SC) 15 as entire (undivided) structures, but any distal ornamentation, if present, cannot be determined. Spinose calyculae (joined into flounces?) can be seen to SC 7 and spinules appear to extend to SC 10. Little beyond that can be determined without complete destruction of the hemipenis. [The right organ was left intact.]

RELATIONSHIPS

The genus *Oligodon* ranges from the Tanimbar islands east of Timor through the East Indies and the Philippines to the Malayan Peninsula, and then northward to southern China and westward, south of the Himalayas, to Pakistan. It is made up of more than 60 currently recognized species (and more than double this number that have been placed in synonymy). All are small snakes (less than a meter in length) with an enlarged rostral scute and three or four enlarged teeth at the rear of the maxilla. All have the same basic head patterns and are similar in major structural features. The bewildering number of species has been described on the bases of minor differences in scutellation and various patterns of coloration. Probably not half of the currently recognized species are valid.

Nevertheless, until the degree of variation within populations is determined and until features of dentition, osteology, and soft anatomy are better described, little can be done to identify the valid species and species groups within this genus. Unquestionably, some of the current species names are based upon interpopulational variations in scutellation or pattern. Ultimately it will take population analyses from geographic, structural, and biochemical standpoints to resolve the systematic problems. Unfortunately, knowledge of the hemipenial structure of these snakes, which Wall (1923) suggested might have some potential in

resolving some of the taxonomic problems, has progressed very little in the last 45 years.

The 12 species reported from Burma appear to fall into two distinct groups on the basis of dentition (Table 1). One group has a maxilla that is edentulous anteriorly, and bears only six to eight teeth. The other group lacks the edentulous anterior end and has nine or more teeth.

It is clear that *Oligodon mcdougalli* belongs with the first group and that it differs from the other members in relatively minor ways. The fusion of internasals or loreal with the prefrontals is a commonly-observed feature in snakes (especially burrowing snakes) that possess a short maxilla (*A*. Downs, 1967), and probably has been over-emphasized as a species character in *Oligodon*. It is especially notable that all of the members of the first group are allopatric except *O. hamptoni*, which lies between *O. dorsalis* and *O. catenata*, both geographically and morphologically (Fig. 2). It seems possible that the five named forms are actually no more than members of a single variable species.

No other species of *Oligodon* appears to have been recorded from this region of southwestern Burma, however, and none of the species described by Taylor (1965) from Thailand is similar. *O. mcdougalli* resembles the southern Burmese species *O. planiceps* (Boulenger, 1888) in dorsal scale formula, but differs widely in maxillary tooth count as well as in the numbers of labials, ventrals, and subcaudals. It differs also in colour pattern.

It agrees with the northern Burmese species *O. catenata* (Blyth, 1854) in most respects, including the colour pattern, dorsal scale row count, and ventral and subcaudal counts. It differs mainly in the presence of separate internasals, an additional supralabial, and one less maxillary tooth.

A species based upon a single specimen is always questionable and there are as yet no studies that would offer information on the amount of intraspecific variation that might be anticipated in the head scutes of *Oligodon*. Until it can be shown that the presence or absence of separate internasal scutes is an individual variation, therefore, it appears best to recognize *O. mcdougalli* as a valid species related to the more northern *O. catenata* and its adjacent forms.

TABLE 1

MORPHOLOGICAL FEATURES OF SPECIES OF *Oligodon* FROM BURMA AND ADJACENT REGIONS. SPECIES ARE ARRANGED BY MAXILLARY TOOTH COUNT

MX											
0+6	13+13+13	199	2	40	2	1	0	1	1	7	*O. mcdougalli*	B
0+6-7	15+15+13	162-188	2	27-51	2	1	1	1-2	1	7	*O.dorsalis*	H,B,E
0+7	15	160-175	2	30-32	0	1	0-1	1	1	5	*O. hamptoni*	B
0+7	13+13+13	186-208	2	37-40	0	1	0	1	1	6	*O. catenata*	B
0+7-8	15+15+13	154	2	46	2	1	0	2	1	7	*erythrorhachis*	H
9-10	17+17+15 to 21+21+17	165-195	1	37-58	2	2	1	2	1-2	7-8	*O. cyclurus*	H-IC
10	13+13+13	132-142	2	22-27	2	1	0	2	1	4-5	*O. planiceps*	B
10-11	21+21+17	169-193	1	35-47	4	2	1	2	2	8	*O. splendidus*	B
10-12	15	162-178	2	25-33+	0	1	0	2	1	5	*O.lacroixi*	IC
10-12	15+15+13? to 17+17+15	157-185	1	29-42	2	2	1	2	1	8	*O. cinereus*	B-IC
10-12	19+19+15	162-208	1	53-68	2	2	1	2	1	7	*O. juglandifer*	H
10-12	19+19+15 to 21+21+15	177-208	1	47-69	2	2	1	2	1	7	*O. albocinctus*	H
14-16	17+17+15	148-173	2	27-40	2	2	0-1	2	1	8	*O. cruentatus*	B
15-16	15+15+13	144-159	2	26-34	2	1	1	2	1	7	*O. torquatus*	B
15-16	17+17+15	164-180	2	30-42	2	2	1	2	1	8	*O. theobaldi*	H-B

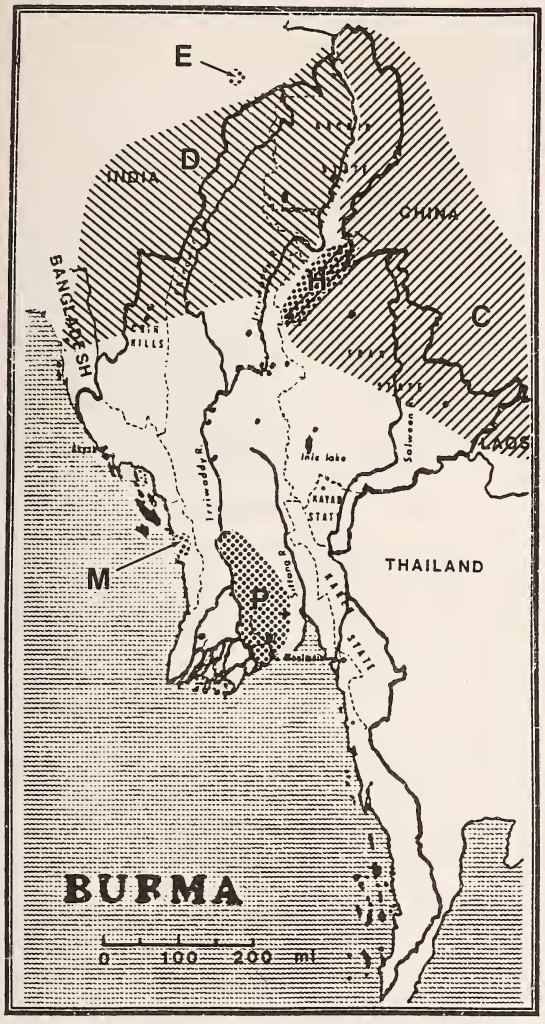

Fig. 2. Map of Burma, indicating: (M) the type locality of *Oligodon mcdougalli*, and the approximate known ranges of geographically adjacent and possibly related species, (C) *O. catenata*, (D) *O. dorsalis*, (E) *O. erythrorhachis*, (H) *O. hamptoni*, (P) *O. planiceps*.

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